

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE

		170FM01		
VENT TUBE ASSEMBLY, ITEM 170 ----- SV809669-3 (1)	2/1R	External leak. Seal Failure.	END ITEM: Suit gas leakage to ambient. GFE INTERFACE: Excessive consumption of the primary oxygen supply. The SOP is automatically activated during EVA if the suit pressure drops to 3.33 psia. MISSION: Terminate EVA. Loss of use of one EMU. CREW/VEHICLE: None for a single failure, possible loss of crewman with loss of SOP. (Second failure)	A. Design - The O-seals at inlet and outlet interface connections were designed to allow misalignment. The seals are radial type O-rings made from elastomeric material (viton). O-ring seal configuration and rigidness of assembly provide squeeze under all loading conditions. Corrosion protection is provided by a vespel adapter tube fitted between the inconel ventilation tube and the aluminum fan/pump/separator housing. The valve module interface at the other end is corrosion resistant stainless steel against the inconel ventilation tube. B. Test - Component Acceptance Test - The tube must withstand 10.0 +/- 0.5 psig nitrogen for two minutes minimum with no visable leakage while immersed in Freon. PDA Test - An external leakage test is performed per SEMU-60-010. The vent loop is pressurized to 18.9 - 19.1 psia with oxygen. Measured leakage is not to exceed 4.66 scc/minute. Certification Test - Certified for a useful life of 15 years (ref. SEMU-46-004). C. Inspection - The interfacing surfaces between the ventilation tube, adapter tube, fan outlet, and the valve module inlet are 100% inspected to meet dimensional and surface finish requirements. The O-seals are 100% inspected for surface characteristics per SVHS3432. D. Failure History - (P/N SV785890-Muffler Obsolete Configuration): H-EMU-170--001 (6-1-87) Material in "O" seal groove area loss due to corrosion. EC163402-90 Incorporates application of BR127 to Elbow O-Seal groove area to reduce galvanic corrosion potential on new and field mufflers. (P/N SV809669/SV809670, Vent Tube Assembly): None. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Final SEMU Gas Structural and Leakage. None for EET processing.
----- SV809670-1 (1)				
			TIME TO EFFECT /ACTIONS: Seconds. If EVA, return to the vehicle. TIME AVAILABLE: Minutes. TIME REQUIRED: Immediate. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	F. Operational Use - Crew Response - PreEVA: Trouble-shoot problem, if no success consider EMU 3 if available. EMU no go for EVA EVA: When CWS data confirms an accelerated primary O2 use rate, terminate EVA. If CWS data confirms an accelerated primary O2 use rate coupled with a loss of suit pressure regulation, Abort EVA. Training - Standard EMU training covers this failure mode. Operational Considerations -

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Flight rules define go/no go criteria related to EMU suit pressure regulation. Flight rules require termination of EVA upon activation of SOP. EVA checklist and FDF procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-170 VENT TUBE ASSEMBLY
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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